ABSTRACT

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LITHOGRAPHIC PROJECTION APPARATUS POSITIONING SYSTEM, METHOD OF MANUFACTURING, DEVICE MANUFACTURED THEREBY AND COMPUTER PROGRAM

A lithographic apparatus has a positioning system for positioning an object table, said positioning system comprising a planar motor having a stator and a translator, one of said stator and said translator comprising a periodic magnet structure and the other of said stator and said translator comprising a plurality of energizable coils. The phase relationship between stator and translator of the planar motor is determined by energizing a plurality of said energizable coils in turn with an oscillating signal sufficient to cause vibrations of said translator having an amplitude less than the period of said periodic magnet structure, measuring said vibrations of said translator, and determining the phase relationship between said translator and said stator on the basis of said measured vibrations.

Alternatively, the relationship between stator and translator is be determined by detecting means detecting distinct optical marks on the periodic magnet array. Control means determine the relationship between said translator and said stator on the basis of detected distinct optical marks.